



Course Specification

(Bachelor)

Course Title: **IT Infrastructure**

Course Code: **IS1341**

Program: **Bachelor in Information Systems**

Department: **Information systems**

College: **College of Computer and Information Sciences**

Institution: **Imam Mohammad Ibn Saud Islamic University**

Version: **2**

Last Revision Date: **July 13th, 2025**

Approved: 24/08/2025



Table of Contents

A. General information about the course:	3
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods	4
C. Course Content	5
D. Students Assessment Activities	6
E. Learning Resources and Facilities	6
F. Assessment of Course Quality	7
G. Specification Approval	7





A. General information about the course:

1. Course Identification

1. Credit hours: 3 credit hours (lectures:3)

3

2. Course type

- A. ☐ University ☐ College ☒ Department ☐ Track ☐ Others
- B. ☒ Required ☐ Elective

3. Level/year at which this course is offered: third Year

4. Course general Description:

This course provides an in-depth overview of IT infrastructure for Information Systems students, focusing on the foundational technologies and systems that support modern organizational operations. It covers essential areas such as computer and systems architecture, cloud computing, data centers, virtualization, Internet of Things (IoT), and AI/ML infrastructure. The course also addresses critical non-functional attributes including performance, availability, and security. Emphasis is placed on developing students' ability to analyze infrastructure needs, evaluate emerging technologies, and communicate effectively with technical professionals and external vendors. Through practical learning and projects, students gain the skills to design and manage infrastructure solutions that align with business goals, ensure continuity, and meet regulatory and compliance requirements in an evolving digital environment

5. Pre-requirements for this course (if any):

CS1322 Operating Systems

6. Co-requisites for this course (if any):

No Co-requisites

7. Course Main Objective(s):

The aim of this course is to provide Information Systems students with a comprehensive understanding of modern IT infrastructure and its critical role in enabling organizational capabilities. The course addresses key concepts in computer and systems architecture, data centers, cloud computing, virtualization, Internet of Things (IoT), and Artificial Intelligence (AI) infrastructure. It emphasizes non-functional attributes such as availability, performance, and security, and prepares students to design, evaluate, and apply IT infrastructure solutions in real-world environments. Students will also develop the skills needed to collaborate effectively with technical teams and external vendors, ensuring infrastructure decisions align with business goals, compliance requirements, and emerging technologies

2. Teaching mode (mark all that apply)





No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3 hours/week	100%
2	E-learning		
3	Hybrid - Traditional classroom - E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Recognize the fundamental definitions and terminology of IT infrastructure.	K1(I)	<i>Class Lectures</i>	<i>Quiz, Mid Term, Final</i>
1.2	Demonstrate understanding of infrastructure security, AI integration, and datacenter technologies.	K2(I)	<i>Class Lectures</i>	<i>Quiz, Final,</i>
1.3	Explain the technologies, services, and operational	K3(P)	<i>Class Lectures</i>	<i>Midterm, Final, Assignments</i>





Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	models used in IT infrastructure			
2.0	Skills			
2.1	Interpret the importance of different components of IT infrastructure	S1(I)	<i>Class with session</i> <i>Lectures practical</i>	<i>Midterm, Final, Assignments</i>
2.2	Develop and evaluate the design of IT infrastructure solutions including cloud, IoT, and AI-based environments.	S2(P)	<i>Class with session</i> <i>Lectures practical</i>	Project, Assignments
2.3	Apply appropriate tools, patterns, and techniques in securing and optimizing IT infrastructure.	S3(P)	<i>Class with session</i> <i>Lectures practical</i>	Project
3.0	Values, autonomy, and responsibility			
3.1	Work collaboratively and demonstrate leadership and accountability in infrastructure-related projects.	V1(P)	Class Lectures with practical session	<i>Project Presentation</i>
3.2	Show professional and ethical behavior in team communication and project execution.	V2(I)	Class Lectures with practical session	Project
3.3	Communicate infrastructure designs and evaluations clearly in oral and written formats.	V3(P)	Class Discussion	<i>Project Presentation</i>

C. Course Content

No	List of Topics	Contact Hours
1.	Chapter 1: The Definition of IT Infrastructure	3
2.	Chapter 2: The Infrastructure Model	3



3	Chapter 3: Introduction to Non-functional Attributes	3
4	Chapter 4: Availability Concepts	3
5	Chapter 5: Performance Concepts	5
6	Chapter 6: Security Patterns	5
7	Chapter 7: Datacenters	5
8	Chapter 8: Cloud Computing and virtualization	3
9	Chapter 9: Internet of Things (IoT)	3
10	Chapter 10: Artificial Intelligence (AI) Infrastructure	4
11	Chapter 11: Artificial Intelligence (AI) & Machine Learning (ML)	5
12	Project Discussions	3
Total		45

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz	4,11	10%
2.	Midterm Exam	8	20%
3.	Assignment	7	10%
4	Group Project	15	20%
5	Final Exam	16	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	1. S. Laan. IT infrastructure Architecture – Infrastructure Building Blocks and Concepts, Third Edition, 2017. ISBN 978-1-291-25079-5 2. Kai Hwang. Cloud Computing for Machine Learning and Cognitive Applications. MIT Press. ISBN: 9780262036412 3. Stuart Russell & Peter Norvig. Artificial Intelligence: A Modern Approach (4th Edition). Pearson. ISBN: 978-0134610993
Supportive References	N/A
Electronic Materials	N/A
Other Learning Materials	Rajendra Akerkar & Priti Sajja. Knowledge-Based Systems. 1 st Edition, Jones & Bartlett Learning (2010). ISBN: 9780763776473



2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	1. At least 30 seats 2. A projector connected to a PC preferably with Internet connection 3. Sliding board
Technology equipment (projector, smart board, software)	
Other equipment (depending on the nature of the specialty)	N/A

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect using course evaluation survey
Effectiveness of Students assessment	Faculty members	Direct method using TOS file
Quality of learning resources	Students and Faculty	Indirect using course evaluation survey and faculty survey
The extent to which CLOs have been achieved	Faculty members	Direct method using TOS file
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	IS CURRICULUM APPROVAL & DEVELOPMENT COMMITTEE IS QAC / / IS COUNCIL
REFERENCE NO.	
DATE	

